

STABILITY METRICS FOR PLACEMENT TO QUANTIFY THE STABILITY OF PLACEMENT ALGORITHMS

ABSTRACT OF THE DISCLOSURE

A method of assessing the stability of a placement tool used in designing the physical layout of an integrated circuit chip, by constructing different layouts of cells using the placement tool with different sets of input parameters, and calculating a stability value based on the movement of respective cell locations between the layouts. The stability value can be normalized based on cell locations in a random placement. One stability metric measures absolute movement of individual cells in the layouts, weighted by cell area. The cell movements can be squared in calculating the stability value. Another stability metric measures the relative movement of cells with respect to their nets. Shifting of cells and symmetric reversal of cells about a net center does not contribute to this relative movement, but spreading of cells and rotation of cells with respect to the net center does contribute to the relative movement. Relative cell movements can again be squared in calculating the stability value. Many different layouts can be designed using the same placement tool with a range of different input parameters and different movement metrics to build a collection of comparative values that can be used to identify stability characteristics for that tool.